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ogy in general, and because the Commission on Nomenclature established by the International Congress of Zoology is the sufficient and proper body before which to bring such question for decision.

Dr. Fernald stated that the reports of the Commission on Nomenclature of the International Congress of Zoology are greatly delayed by the fact that the congress meets only once in three years, and by the rule that a question must be presented at least a year before the meeting at which it is to be considered. It was not the intention of the mover that the committee should act in opposition to or independently from the Commission on Nomenclature, but that it should be instrumental in voicing the needs of entomology before that body, which should be the final court of reference.

With that explanation, the amendment was withdrawn and motion passed.

Publication of a Journal.—Perhaps the most important act of the meeting was embodied in the following resolutions adopted by the executive committee and confirmed by the society:

1. That the society undertake a publication to be called *Annals of the Entomological Society of America*, to be issued in quarterly fascicles.
2. That it include only papers of importance or marked merit, and that each be issued and bound separately as well as in fascicles, so that each paper may be sold separately.
3. That proceedings of the meetings be included either at the beginning or end of each volume and form one separate, which is to be sent to all members of the society.
4. That a subscription price of one dollar in addition to the membership fee be charged members for the annals and that the subscription price to non-members, libraries, etc., be \$3.
5. That an editorial board be selected by the executive committee and that this board shall select one of its members as managing editor, who, with his associates, shall be responsible for the selection of material to be published.
6. That if possible some one living in a suitable location and who can undertake the work of man-

aging editor for a series of years, be selected for this position.

7. That details not covered in this report are to be determined by the editorial board.

8. That actual publication under the provisions of this report be inaugurated as soon as possible.

It will be seen from the above that all members will receive the number containing the full proceedings of the meetings free, and upon payment of one dollar the entire annals; while the regular subscription price to non-members will be \$3.

A resolution was passed limiting the number of fellows for the present to ten per cent. of the membership.

The meeting then adjourned, to meet next December in Baltimore.

During the sessions the executive committee elected the following fellows: Justus Watson Folsom, William Joseph Holland, Clarence Preston Gillette, Lawrence Bruner, Mark Vernon Slingerland, Henry Clinton Fall, Charles Lester Marlatt.

J. CHESTER BRADLEY,
Secretary

SCIENTIFIC BOOKS

Practical Physiography. HAROLD WELLMAN FAIRBANKS, Ph.D. Pp. xxvii + 542; 403 figs., including 9 colored maps. Boston, Allyn & Bacon. 1906.

The author of this new text-book of physiography points out the fact that the evolution of better methods of teaching justifies the addition of new texts to those already in use, and in his own production makes certain departures from the usual methods with the purpose of effecting desirable improvements. Questions and exercises are distributed throughout the text, in order to make the volume a combination of text-book and field and laboratory guide. The illustrations are largely from photographs, on the ground that "they appeal with much more force to pupils of high school age than do diagrams or sketches." When diagrams are considered necessary, the student is asked to construct them. The printed illustrations are good, and have an added interest from the fact that

most of them are from the author's own negatives. The press work is excellent, and the appearance of the volume is very attractive.

The book is divided into two parts, the first supposed to deal with physiographic processes in general, and the second with physiographic features of the United States, although this scheme is not closely followed. In Part I. are considered such subjects as the general features of the earth's surface; the effect of the "interior or building-up forces" and the "exterior or tearing-down forces" on the surface of the earth; the composition of the earth; and the work of underground waters. In Part II. we find a discussion of the plains, mountains, valleys, rivers, lakes and shore lines of the United States, the climate of the United States and the subjects of forestry and irrigation, as well as a general treatment of the ocean and the air.

As a source of good illustrations and much interesting information, the book is of distinct value. While appreciating the book's many good points, the writer of this review is impelled to point out what seem to him some serious defects.

It may be doubted whether any considerable number of teachers of physiography will agree with the author that photographs can advantageously replace good diagrams. The absence of such diagrams detracts from the value of the present book. Both diagrammatic and photographic illustrations are needed in the ideal text. It is impossible to secure photographs of many things which require illustration; as, for example, the relation of structure to topography in different types of mountains. To depend upon the student for the preparation of such diagrams does not seem desirable.

The lack of system in the selection and presentation of subject-matter throughout the book constitutes, in the opinion of the reviewer, another serious defect. Physiographic descriptions are frequently encumbered with a large mass of geological details, interesting in themselves, but having little or no relation to surface forms. Two whole chapters are devoted to The Composition of the Earth. The conditions of ore deposition, and the

methods of mining are of importance to students of economic geology and mining engineering; but it may be doubted whether it is expedient to burden a text-book of physiography with matter so irrelevant. The consideration of stream action, instead of being systematically presented in one place, is scattered through several chapters, especially chapters IV., The Exterior or Tearing-down Forces; VII., The Sculpturing of the Land, and XIV., Valleys and Canyons. In Part I., General Physiographic Processes, we look in vain for any discussion of such general topics as ocean tides and currents, movements of the air, formation and classification of clouds, the origin of storms, etc. But we find two chapters on these general subjects included in Part II., under the title, The Physiography of the United States. Sand dunes and glacial accumulations are treated in chapter XII., Mountains of the United States. Barrier beaches and lagoons are in part treated under Basins and Lakes of the United States, in part under The Geography of Coast Lines.

The author follows, to a limited extent, the newer method of physiographic treatment in which land forms are considered in their relation to stages of development in the geographic cycle. Such treatment is largely confined to a single chapter, where the "geographic cycle," "new topography," "mature topography" and "old topography" are briefly considered. Elsewhere in the book we find little application of this newer method, although, in the opinion of the reviewer, it is essentially important in a modern text on physiography.

When we examine the details of subject-matter we find a number of statements which many teachers of physiography would consider open to criticism. The full-bodied, subdued forms of the maturely dissected White Mountains of New Hampshire are cited as examples of "old mountains." It is implied in several places (*e. g.*, page 34) that fresh lava is always rough and old lava smooth. The implication that young mountains are those which are still being uplifted and that old mountains are those in which the uplifting process has ceased (pp. 6, 126) might

mislead the student, inasmuch as uplift might be going on in a young, a mature or even an old mountain range; while uplift might have entirely ceased in a young mountain range. The stages of mountain development are not directly concerned with constructional forces, but depend wholly upon the amount of dissection accomplished by destructional forces.

If the author's statements are correctly interpreted, it would seem that the stage of development of the land form and the stage of stream development are often confused. On page 132, after describing a region where the streams "dash swiftly through narrow canyons" and where "rapids and waterfalls mark their courses," it is stated that "the topography has now reached its *mature* stage." It is true that the land form in question may have reached maturity, but the description suggests that the streams are very young. Figure 98 represents the head of King's River in the Sierra Nevada, and is given as an example of "topography in early maturity." The mountains are mature, but the valley appears to be young. Figure 99, Trinity River in the Klamath Mountains, and figure 100, a canyon near Phoenix, Arizona, are likewise cited as examples of "mature topography," although both show features generally regarded as characteristic of youth, and both are referred to as "canyons."

The discussion of drainage patterns on pages 142-151 is confusing, because the author uses the terminology of recent students of river action, but does not follow their interpretations. The definition given of subsequent streams is not the definition generally accepted by physiographers, and the origin of subsequent streams as understood by them is nowhere referred to. The figure representing subsequent streams is misleading inasmuch as none of the streams can be regarded as subsequent, with the very doubtful exception of a few of the smallest branches. The request that the student distinguish between the consequent and subsequent streams of the folded Appalachians may lead to error, for the streams (Delaware, Susquehanna, etc.), which according to the implication of the text are to be considered

consequent, are believed by those most familiar with the rivers of the region, to belong to a different class. The statement that "the tributary streams are, however, weaker than the rock structure and have adapted themselves to it," and that stream channels are "slowly shifted to correspond to the differences in the rocks" suggests that the streams, tributaries and all, are ready made, let down upon diverse rock structures, and then bodily shifted to follow the softer rocks as far as possible. The student is here given an interpretation of the methods of drainage adjustments quite different from that generally advanced to account for the relations existing between longitudinal and transverse valleys. One is surprised to find in a modern text-book the statement that when subsequent streams "encounter a broad stratum or dike of resistant rock, they turn and follow along the softer beds by the side of the main stratum until a narrow or weak spot is found in it, and then they turn and cross" (p. 145). Such an explanation is obsolete.

On page 190 we find the statement that "Plains of accumulation are distinguished by perfectly even surfaces, often many miles in extent. Volcanic plains and plains of erosion are often undulating." Maturely dissected plains and plateaus have no place in this classification, and the undulating surfaces of young plains of accumulation are not recognized. The Appalachian Plateau is not even mentioned in the discussion of plains and plateaus of the United States; nor under mountains formed by erosion, where other dissected plateaus are classed. But under Rivers of the United States, we find a brief reference to the "maturely dissected" Appalachian Plateau (p. 347). The region from the head of the Gulf of California eastward into Texas is described under Marine Plains (p. 193), where it is stated that "the waves and currents which built up these plains so long ago distributed the sediments as evenly as a floor. The mountain peaks rise like islands from this floor." The alluvial origin of extensive areas of the intermontane plains, the relations of the plains to each other and to the mountain ranges, and the many other complications

in the topography of the region, do not find a place in this description. The account of the Great Plains (pp. 212-215) leads the student to believe that the surface is a gently undulating peneplain surface with a little gravel strewn over it near the base of the Rocky Mountains; and that the eastern slope of the Rocky Mountains west of Colorado Springs is formed by the up-folded layers which underlie the plains. ("The steep slope of the eastern face of the mountains marks the point where the strata, which underneath the plains are nearly flat, have been sharply folded"—p. 214.)

The reviewer's experience as a teacher leads him to conclude that students profit more from a statement of both sides of a question concerning the answer to which some doubt might reasonably be entertained, than from a definite settlement of the question according to the author's best opinion. Some teachers would prefer to omit the consideration of such questions altogether. Teachers having either conviction will doubt the wisdom of such statements as that on page 255, where it is confidently asserted regarding a low mountain fold in Washington, that "the movement undoubtedly stopped long ago, and will never result in a greater elevation." In a reference to that problematic ring or crater known as Coon Butte, Arizona, we read: "This iron [meteoric iron found about the crater] was thought by those who found it to be fragments of an enormous meteorite which had struck the earth with such force as to bury itself deeply where the crater stands. The iron, indeed, proved to have belonged to a meteorite that by mere chance had fallen by the crater and really had nothing to do with it" (p. 268). The student would not realize, from this statement, that the meteoric origin of the crater is still maintained by competent geologists.

The author's discussion of glacial erosion includes the following statements: "It is even thought by some that the rounded canyons in glaciated areas, including the fiord canyons of Norway and Alaska, are in their essential features the work of glaciers; but there is much more reason in the view that they were made by running water, and that their flooded

mouths have resulted from a subsidence of the land." "As a usual thing, the trunk stream in a given basin will deepen its channel more rapidly than its tributaries, so that the latter will for a long time enter the main canyon or valley by a rapid or waterfall. It is also true that a large glacier will erode its bed more than a small one, and this fact has given rise to the view held by some geographers that hanging valleys in glaciated regions are the result of differential action of ice streams of unequal size. From the fact that similar valleys exist in non-glaciated regions, however, it seems more reasonable to believe that the main features of hanging valleys result from stream erosion previous to glaciation" (pp. 314-316). It is to be feared that the student will here be misled as to the real reason why some geographers believe hanging valleys and fiords in glaciated regions are due to glaciation; also that he will not appreciate the very limited occurrence of hanging valleys in non-glaciated regions, or the special conditions under which they occur in such regions. He will later have to learn that, except in certain young valleys, tributaries as a usual thing enter the main stream at accordant levels, as announced by Playfair many years ago. It is interesting to note that the example of a hanging valley ascribed by the author to normal stream action (p. 330), is that of Bridal Veil Creek where it enters the Yosemite Valley; an example taken from a *glaciated* region, and believed by many to be due to glacial over-deepening of the main valley.

The antecedent origin of the course of the Green River through the Uinta Mountains is set forth without question (p. 362), notwithstanding the doubt long entertained regarding the correctness of that interpretation. The popular misapplication of the term "tidal wave" to a wave produced by an earthquake shock is adopted on page 434, without any explanation; confusion is made easy because tides are treated in the same connection. The relation of the two high tides is stated in the following words: "It (the water) is heaped up on the side nearest the moon, because there the pull of the latter is strongest; while a corresponding rise in the water takes place upon

the side farthest away, where the pull is weakest" (p. 436). While literally true, the statement is likely to mislead the student who does not notice the sudden change from "because" in the first part of the sentence, to "where" in the second part. The reason for the existence of two waves is not referred to.

Throughout the volume one sees abundant evidence of the author's extended field experience and untiring industry in collecting illustrations of physiographic features. While the book is, in its present condition, of value to teachers, for general school use the subject-matter will require, possibly in another edition, more carefully considered and systematic treatment.

D. W. JOHNSON

SCIENTIFIC JOURNALS AND ARTICLES

The Journal of Experimental Zoology, Vol. V., No. 1 (November, 1907), contains the following papers: "Determination of Sex in *Hydatina senta*," by David Day Whitney. "A New Explanation of the Mechanics of Mitosis," by Arthur B. Lamb. It is suggested that the characteristic configuration of the chromatin substance in dividing cells may be due to a synchronous pulsation or oscillation of the astral centers and it is shown that this explanation presents certain unique advantages as contrasted with previous explanations. "The Reactions of Planarians to Light," by H. E. Walter. The action of light upon planarians is a function of its intensity, which, under certain conditions, is emphasized by the direction of the light. The orientation and phototaxis of planarians is more consistently explained by the theory of tropisms than by the theory of trial and error. The evolution of the photoreceptive apparatus of planarians stands at such a low stage of differentiation that the light environment of these worms is of slight importance to them.

At the recent Chicago meeting of the Association of Economic Entomologists a stock company was organized for the purpose of publishing a *Journal of Economic Entomology*. This bimonthly publication is devoted to economic entomology in its widest aspects.

The first number will appear in February. It has a board of editors and advisory board composed of well-known investigators. E. P. Felt, state entomologist, Albany, N. Y., is editor; A. F. Burgess, secretary of the Association of Economic Entomologists, Washington, D. C., associate editor, and E. D. Sander-son, business manager. On the advisory board are Dr. S. A. Forbes, Illinois; Dr. James Fletcher, Canada; Dr. L. O. Howard, Washington; Dr. H. T. Fernald, Massachusetts; Professor Herbert Osborn, and Professor H. A. Morgan, Tennessee.

SOCIETIES AND ACADEMIES

THE TORREY BOTANICAL CLUB

THE regular meeting of the club for December 10, 1907, was held at the American Museum of Natural History at 8:30 P.M., with President Rusby in the chair and fourteen persons present. In the absence of the secretary, Mr. Charles L. Pollard was appointed acting secretary. The minutes of the last preceding meeting were read and approved.

The following scientific program was presented:

Dictionaries and their Relation to Biology:

CHARLES LOUIS POLLARD.

The speaker referred to the fact that a large part of the increment in our language in recent years has consisted of scientific terms, including new Latin classificatory names, biological descriptive words and phrases, and vernacular names. In spite of this there is a very general lack of interest among working scientists in the average dictionary, and it is not the indispensable reference book which it should be. The reasons for this are to be sought in the attitude of the publishers toward the style of definitions, the effort to avoid undue technicality often resulting in scientific inaccuracy. Obsolete words and meanings are frequently given too great prominence and are not properly differentiated from those in current usage. There is also a tendency to magnify the importance of so-called popular names, many of which are coined by the writers of manuals and are not used elsewhere.